

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A guide wire comprising:
 - a distal end side portion having a proximal end and formed of a first metallic material,
 - a proximal end side portion having a distal end and formed of a second metallic material higher in rigidity than said first metallic material, and
 - an intermediate portion provided between said distal end side portion and said proximal end side portion, having a proximal end and a distal end, said intermediate portion being formed of a metallic material mixture of said first metallic material and said second metallic material,

wherein said intermediate portion comprises an integral gradient composition portion having a predetermined length in which a weight ratio of said first metallic material in the metallic material mixture decreases and a weight ratio of said second metallic material in the metallic material mixture increases along the length of said intermediate portion, from the distal end side portion toward the proximal end side portion,

wherein said distal end of said intermediate portion is joined to a terminal end of said proximal end of said distal end side portion and said proximal end of said intermediate portion is joined to a terminal end of said distal end of said proximal end

side portion such that said distal end side portion and said proximal end side portion do not overlap,

said intermediate portion comprising a sintered cylindrical body formed of a powder of said first metallic material and a powder of said second metallic material.

2. (Previously Presented) The guide wire as set forth in claim 1, wherein the weight ratio of said second metallic material in the metallic material mixture in said gradient physical property portion increases stepwise from the distal end side toward the proximal end side.

3. (Withdrawn) The guide wire as set forth in claim 1, wherein the weight ratio of said second metallic material in the metallic material mixture in said gradient physical property portion increases continuously from the distal end side toward the proximal end side.

4. (Original) The guide wire as set forth in claim 1, wherein said first metallic material is a Ni-Ti based alloy.

5. (Original) The guide wire as set forth in claim 1, wherein said second metallic material is a stainless steel.

6. (Withdrawn) The guide wire as set forth in claim 1, which comprises a coil portion so provided as to cover a distal end portion thereof.

7. (Withdrawn) The guide wire as set forth in claim 6, wherein said coil is formed of a contrast material.

8. (Withdrawn) The guide wire as set forth in claim 1, wherein at least a portion of an outer surface of said guide wire is coated with a resin.

9. (Withdrawn) The guide wire as set forth in claim 1, wherein a distal end portion of said intermediate portion is formed only of said first metallic material, and a proximal end portion of said intermediate portion is formed only of said second metallic material.

10. (Original) The guide wire as set forth in claim 1, wherein said intermediate portion is joined to said distal end side portion and said proximal end side portion by welding.

11. (Withdrawn) The guide wire as set forth in claim 1, which is an integral body free of any joint portion.

12. (Previously Presented) A guide wire comprising a distal end side portion having a proximal end and formed of a first metallic material, a proximal end side portion having a distal end and formed of a second metallic material higher in rigidity than said first metallic material, and an intermediate portion provided between said distal end side portion and said proximal end side portion and having a proximal end and a distal end,

wherein said intermediate portion comprises a sintered cylindrical body formed of a powder of the first metallic material and a powder of the second metallic material,

wherein said intermediate portion comprises a gradient composition portion having a predetermined length in which a weight ratio of said first metallic material in the metallic material mixture decreases from the distal end side portion toward the proximal end side portion, a distal end of said intermediate portion is formed of said first metallic material, and said distal end of said intermediate portion is joined to said distal end side portion by welding, and

wherein said distal end of said intermediate portion is joined to said proximal end of said distal end side portion and said proximal end of said intermediate portion is joined to said distal end of said proximal end side portion.

13. (Currently Amended) A guide wire comprising a distal end side portion having a proximal end and formed of a first metallic material, a proximal end side portion having a distal end and formed of a second metallic material higher in rigidity than said first metallic material, and an intermediate portion provided between said distal end side portion and said proximal end side portion, having a proximal end, a distal end, and an integral portion having a predetermined length which is formed of a metallic material mixture containing said first metallic material and said second metallic material,

wherein in said integral portion of said intermediate portion a weight ratio of said first metallic material in the metallic material mixture decreases from the distal end side portion toward the proximal end side portion and a weight ratio of said second metallic material increases from the distal end side portion toward the

proximal end side portion so as to define a nonuniform composition along the length of said integral portion,

wherein a distal end of said intermediate portion is formed of said first metallic material, and a proximal end of said intermediate portion is formed of said second metallic material, and

wherein said distal end of said intermediate portion is joined to said proximal end of said distal end side portion by welding and said proximal end of said intermediate portion is joined to said distal end of said proximal end side portion by one of welding, soldering or brazing such that said proximal end of said distal end side portion and said distal end of said proximal end side portion do not overlap, and

wherein said intermediate portion comprises a sintered cylindrical body formed of a powder of said first metallic material and a powder of said second metallic material.

14. (Currently Amended) A guide wire comprising a distal end side portion having a proximal end and formed of a first metallic material, a proximal end side portion having a distal end and formed of a second metallic material higher in rigidity than said first metallic material, and an integral intermediate portion provided between said distal end side portion and said proximal end side portion and having a proximal end and a distal end and formed of a metallic material mixture containing said first metallic material and said second metallic material, said intermediate portion comprises a gradient composition portion having a predetermined length in which a weight ratio of said first metallic material decreases from the distal end side toward the proximal end side, and in which a weight ratio of said second metallic

material in the metallic material mixture increases along the length of said intermediate portion from the distal end side toward the proximal end side,

wherein a distal end of said intermediate portion is formed only of said first metallic material, and a proximal end of said intermediate portion is formed only of said second metallic material, ~~and~~

wherein said distal end of said intermediate portion is joined to said distal end side portion by welding and said proximal end of said intermediate portion is joined to said proximal end side portion by one of welding, soldering or brazing such that said proximal end of said distal end side portion and said distal end of said proximal end side portion do not overlap, and

wherein said intermediate portion comprises a sintered cylindrical body formed of a powder of said first metallic material and a powder of said second metallic material.

15. (Withdrawn) A method of manufacturing a guide wire comprising a distal end side portion formed of a first metallic material, a proximal end side portion formed of a second metallic material higher in rigidity than said first metallic material, and an intermediate portion provided between said distal end side portion and said proximal end side portion and formed of a mixture of said first metallic material and said second metallic material, said method comprising the steps of: preparing a distal end side portion forming wire material made of said first metallic material, and a proximal end side portion forming wire material made of said second metallic material; charging a mold with a powder of said first metallic material and a powder of said second metallic material so that the content of said first metallic material

powder increases and the content of said second metallic material powder decreases, from one side toward the other side; sintering the metallic powder charge to produce an intermediate portion forming member comprising a gradient physical property portion; and joining said proximal end side portion forming wire material to one side of said intermediate portion forming member and joining said distal end side portion forming wire material to the other side of said intermediate portion forming member.

16. (Withdrawn) The method of manufacturing a guide wire as set forth in claim 15, wherein said metallic powder charging step comprising charging said mold with said first metallic material powder and said second metallic material powder so as to form a plurality of layers in which the content of said first metallic material in said charge increases stepwise and the content of said second metallic material in said charge decreases stepwise.

17. (Withdrawn) The method of manufacturing a guide wire as set forth in claim 15, wherein said metallic powder charging step comprising charging said mold with said first metallic material powder and said second metallic material powder so that the content of said first metallic material in said charge increases continuously and that the content of said second metallic material in said charge decreases continuously.

18. (Withdrawn) The method of manufacturing a guide wire as set forth in claim 15, wherein said metallic powder charging step is conducted under the

condition where a second metallic member formed of said second metallic material is disposed on one side in the inside of said mold, while a first metallic member formed of said first metallic material is disposed on the other side in the inside of said mold, and said charge is pressed between both said metallic members.

19. (Withdrawn) The method of manufacturing a guide wire as set forth in claim 15, wherein said sintering is conducted by a plasma discharge sintering method.

20. (Withdrawn) The method of manufacturing a guide wire as set forth in claim 15, wherein said first metallic material is a Ni-Ti based alloy.

21. (Withdrawn) The method of manufacturing a guide wire as set forth in claim 15, wherein said second metallic material is a stainless steel.

22. (Withdrawn) A method of manufacturing a guide wire comprising a distal end side portion formed of a first metallic material, a proximal end side portion formed of a second metallic material higher in rigidity than said first metallic material, and an intermediate portion provided between said distal end side portion and said proximal end side portion and formed of a mixture of said first metallic material and said second metallic material, said method comprising a step of continuously extruding into a filamentous shape a kneaded forming material containing a metallic powder for forming said guide wire, and a step of sintering the filamentous body thus extruded, said kneaded forming material extruding step comprising: a distal end side

portion forming material extruding stage for extruding a material containing said first metallic powder into a filamentous shape; a proximal end side portion forming material extruding stage for extruding a material containing said second metallic powder into a filamentous shape; and an intermediate portion forming material extruding stage which is provided between, and continuous with, said distal end side portion forming material extruding stage and said proximal end side portion forming material extruding stage and which is for extruding a material containing said first metallic powder and said second metallic powder, wherein during said intermediate portion forming material extruding stage, the extrusion is so conducted that the content of said first metallic powder in the intermediate portion forming material decreases and the content of said second metallic material in the intermediate portion forming material increases, as said proximal end side portion forming material extruding stage is approached.

23. (Withdrawn) The method of manufacturing a guide wire as set forth in claim 22, wherein said kneaded forming material contains a binder, and said method comprises a step of removing said binder from the extrudate, after said extruding step and before said sintering step.

24. (Withdrawn) The method of manufacturing a guide wire as set forth in claim 22, wherein said first metallic material is a Ni-Ti based alloy.

25. (Withdrawn) The method of manufacturing a guide wire as set forth in claim 22, wherein said second metallic material is a stainless steel.

26. (Previously Presented) The guide wire as set forth in claim 1, wherein said intermediate portion is a cylindrical filamentous portion.

27. (Previously Presented) The guide wire as set forth in claim 12, wherein said intermediate portion is a cylindrical filamentous portion.

28. (Previously Presented) The guide wire as set forth in claim 13, wherein said intermediate portion is a cylindrical filamentous portion.

29. (Previously Presented) The guide wire as set forth in claim 14, wherein said intermediate portion is a cylindrical filamentous portion.

30. (Previously Presented) The guide wire as set forth in claim 1, wherein said intermediate portion formed by sintering a metallic material mixture comprising a powder of said first metallic material and a powder of said second metallic material.

31. (Previously Presented) The guide wire as set forth in claim 13, wherein said intermediate portion formed by sintering a metallic material mixture comprising a powder of said first metallic material and a powder of said second metallic material.

32. (Previously Presented) The guide wire as set forth in claim 14, wherein said intermediate portion formed by sintering a metallic material mixture comprising a powder of said first metallic material and a powder of said second metallic material.

33. (Newly Added) A guide wire comprising:

a distal end side portion having a proximal end and formed of a first metallic material, a proximal end side portion having a distal end and formed of a second metallic material higher in rigidity than said first metallic material, and an intermediate portion provided between said distal end side portion and said proximal end side portion,

wherein said intermediate portion comprises a sintered cylindrical body formed of a first metallic member made of said first metallic material, a second metallic member made of said second metallic material, and a metallic material mixture of a powder of said first metallic material and a powder of said second metallic material charged between said first metallic member and said second metallic member,

wherein in said metallic material mixture a mixing ration of said first metallic material decreases and a mixing ration of said second metallic material increases from the distal end side toward the proximal end side, and

wherein said first metallic member of said intermediate portion is joined to said proximal end of said distal end side portion and said second metallic member of said intermediate portion is joined to said distal end of said proximal end side portion.